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TRACKS

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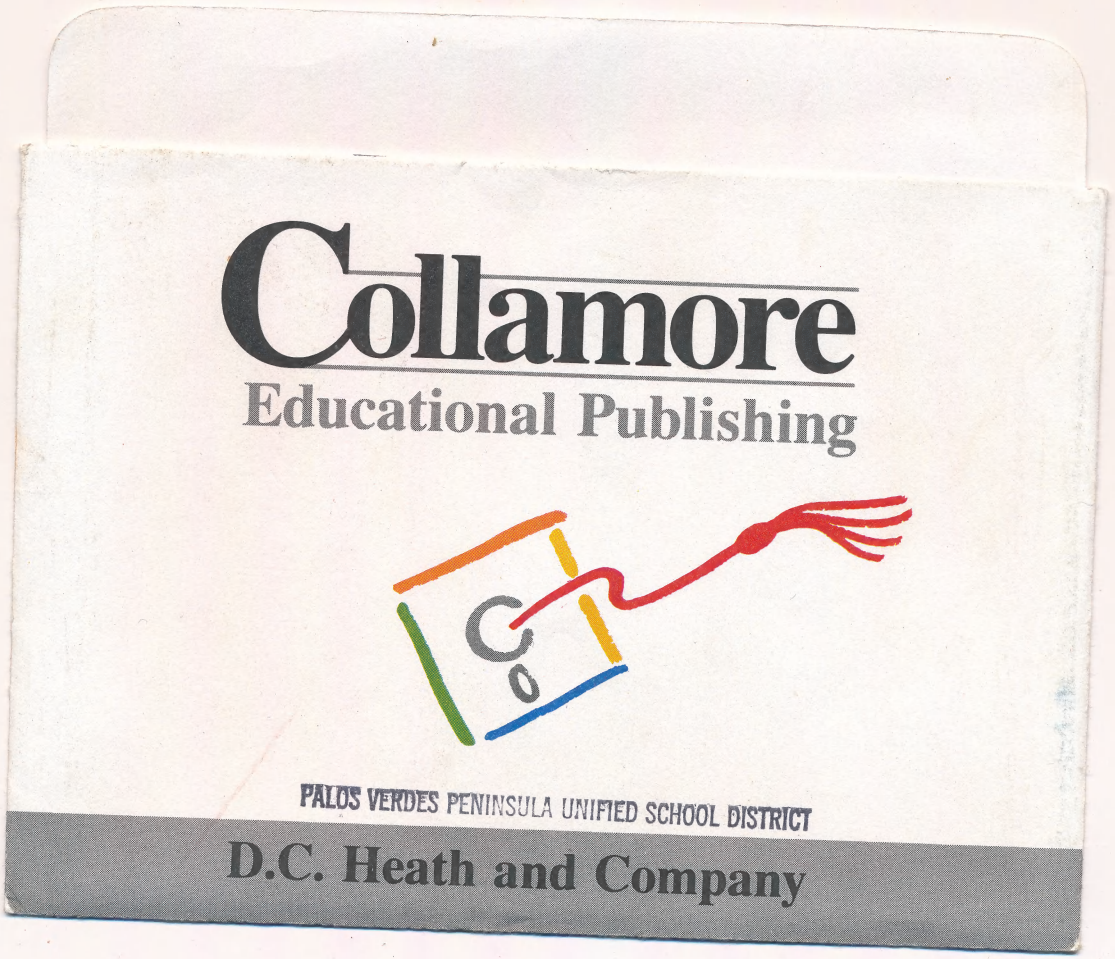

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SIDE 1: Scenes SIDE 2: Activities
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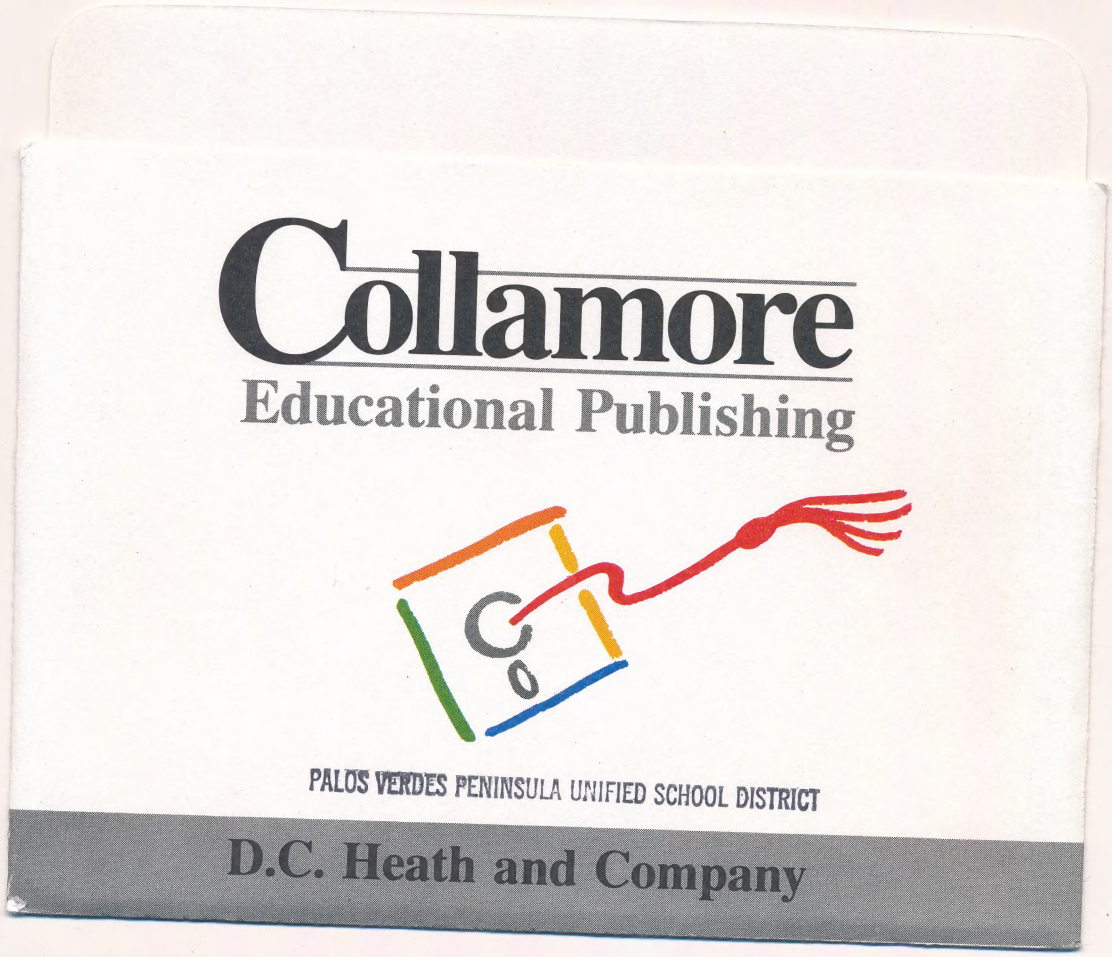
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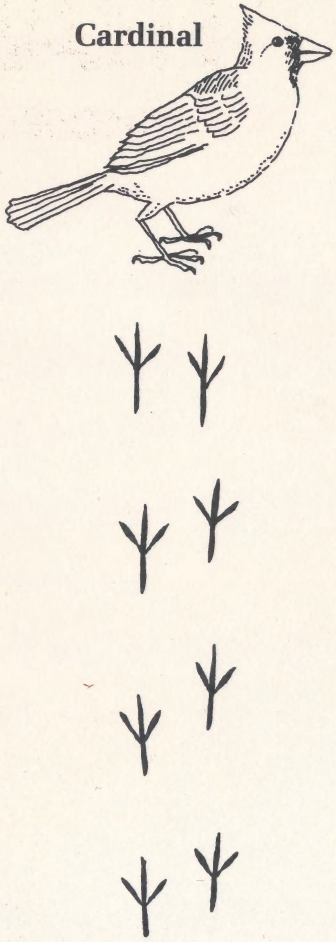
Animals and Their Tracks

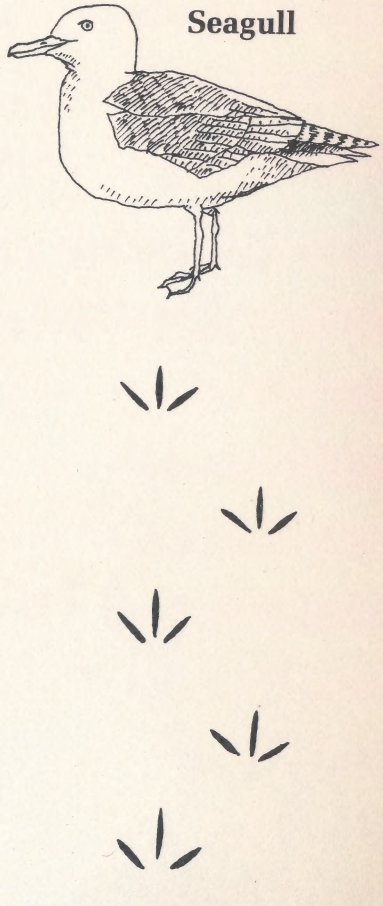
Green Sea Turtle

American Bullfrog

Cardinal



Seagull



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ANIMAL WATCH
TRACKS

EXPLORE-A-SCIENCE

Written by H. Barclay Holmes with Karen Hoelscher
Illustrated by Maureen McConnell

The art appearing in this book was generated
by the Explore-a-Science Software.

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FOLLOWING TRACKS

Have you ever walked along a beach, following the webbed tracks of a seagull? Have you ever tried to follow a pair of human footprints all the way to their owner? If so, you already know something special about tracks.

Each track is a clue to a mystery. Step by step, an animal's story is revealed when you follow its tracks. The tracks give you clues to how an animal lives—how it stays warm in the winter, finds food, or reacts to an attack by a deadly enemy.

Tracks reveal secrets that are not often discovered by people. Most wild animals act naturally only when they are away from people. So, tracking is one important way to learn the everyday activities of animals.

Go to Scene 1. *You can fly the seagull through the sky by putting the pointer on top of it, clicking, and moving it around. You can "drop" it by clicking again. You can move almost anything on the screen by doing this. Look behind the dune grass. Do you see the small, black tracks? Find the animal that made them.*

As a tracker, you will look for clues to animal behavior. You will watch for tracks and the circumstances that surround them. Looking for all types of signs, you will try to uncover some of the secrets of animal life.

Here, you will use your computer to find and compare animal tracks. Remember, though, good trackers do not disturb nature. When they go outside and search for tracks, they leave their discoveries the way they found them.

TRACKER'S DIARY

August

Winslow Beach

Two o'clock

Sunny

It is calm and sunny today as the waves gently roll onto Winslow Beach. A starfish has washed upon the sand, and several spiral-shaped shells are drying in the sun. Tangled in the seaweed are some crisp, black cases that look like tiny pillows. They are the hollow egg cases of fish called sea skates. Looking closely, I can see a green crab in the sand.

Down near the beach, there is a V-shaped trail in the sand. The wide, bumpy tracks look like tractor-tire marks, but they seem to come from the sea. Another set of the same tracks leads back to the water. To find out what left this trail, we must look closely to search for clues.

Go to Scene 2. *Can you find the green crab? The dark, V-shaped trail was made by an animal that dragged its belly in the sand. Find the same tracks in the field guide at the beginning of this book. What animal made them?*

The animal must have come out of the water for a reason. Can you guess what it was? Move the sand from around the tip of the trail, and observe. What did the animal leave behind?

If you make a discovery, be sure to put it back and cover it again with sand. In about two months, if no one disturbs it, this sandy nest will be full of life. Trackers often have to be patient to discover the whole story.

TRACKER'S DIARY

October

Emerson Forest

7 o'clock

clear

It is fall now in Emerson Forest, and a cool wind is blowing through the pine trees. While looking for tracks, I have discovered other signs of animal life. There are small, white and gray pellets beneath one of the fir trees. These pellets are the remains of an owl's dinner. They are bits of bone and fur that the owl couldn't eat. These signs on the forest floor tell me that an owl lives in the tree above.

To the left, there is a bumpy, black and brown pile beneath another tree. It is a red squirrel *midden*. A midden is a pile of nut shells and scales of pine cones that are left from the red squirrel's dinner. As the squirrel eats, it drops the shells to the ground from the tree above. The owl pellets and squirrel midden are signs. They are clues about animals that usually don't leave tracks because they rarely walk on the ground.

Another animal in this grove has left signs as well as tracks. The many-pointed antlers of a male deer are lying in the grass. They grow on the deer's head in early summer and start to come loose in late winter. When the deer rubs his head against a tree to help remove the antlers, he leaves marks on the the tree—another sign that he has passed this way.

Go to Scene 3. *Can you find the red squirrel? Click on it and make it hop from branch to branch. Find its midden and click on it for a closer look. Now click on the owl pellets.*

Bring the owl down from the menu and fly it through the forest. Where would it perch? What other sign marks its tree?

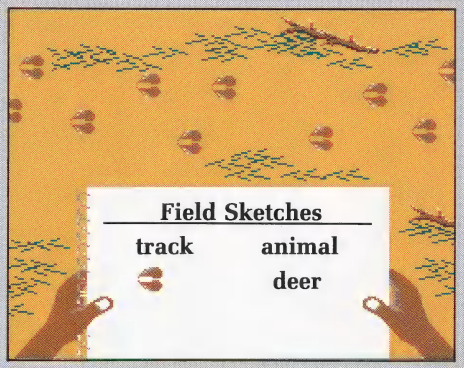
Match the tracks with those in your field guide. Find the animal that made them. This deer is a female. Can you find the old antlers of a male deer? Which tree did he rub them against?

COLLECTING CLUES

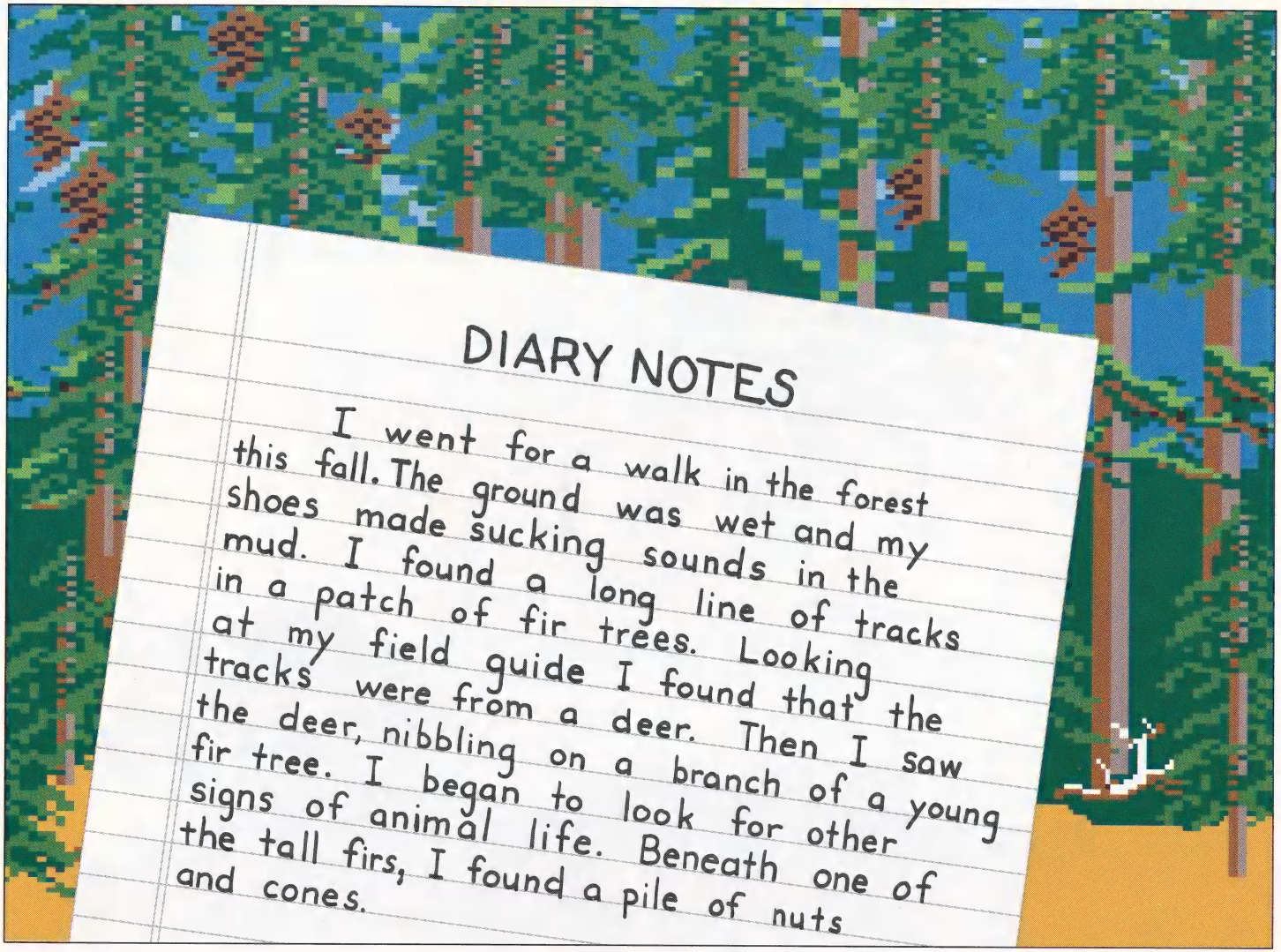
As more and more clues are discovered, a tracker may start to see a story emerge. From the story, the tracker can predict where an animal is, where it will stop and eat, and where it might live. The more stories a tracker finds, the better he or she can understand how an animal behaves.

As you explore, you will try to collect many clues, look at them, and make some predictions. You will keep two notebooks on the computer. In the *Field Sketches*, you will put the tracks you find and name the animal that made them. Use your field guide to identify them. In the *Diary Notes*, you will write a story about what you've seen. You may want to save or print your work after you complete each notebook.

Go to Scene 4. *Here you can look more closely at the forest floor. Click on the tracks, and drop them on your Field Sketches pad. Compare them with the field guide in this book. Then type in the name of the animal that made them. What other signs appear in the forest?*



Go to Scene 5. *Describe what you have seen in Emerson Forest today, and tell a story about what you think happened. Here is my description. Your story might be different.*


DIARY NOTES
I went for a walk in the forest this fall. The ground was wet and my shoes made sucking sounds in the mud. I found a long line of tracks in a patch of fir trees. Looking at my field guide I found that the tracks were from a deer. Then I saw the deer, nibbling on a branch of a young fir tree. I began to look for other signs of animal life. Beneath one of the tall firs, I found a pile of nuts and cones.

TRACKER'S DIARY

December

Spencer's Pond

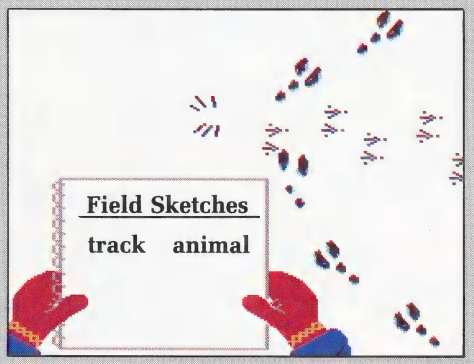
Noon

Clear, Cold

It is winter now. Snow and ice cover Spencer's Pond, making it easy to see and follow tracks. I can see a long trail of them, each one looking like a "Y" turned on its side. To the right is a large mound of sticks.

The tracks are those of a snowshoe hare. When the snowshow hops, its back feet land ahead of its front feet, so the bigger footprints are in front. Examining the tracks, I can tell that the hare was headed in this direction. It must have come from over the hill and stopped somewhere nearby.

Go to Scene 6. *Dig in the snow near the tracks. The hare is in a small hole we call a "form", created by its warm body. The form protects the hare from cold winter winds. Other animals are hiding from the cold. Cut away the ice to see. Find their feeding pile. Take one over to chew on a stick.*



Deep in the mud below the ice, there is yet another animal. It holds very still, as if it were sleeping. In spring, it will live near the green, wet pond. Can you find it?

Go to Scene 7. *There are signs here that tell a story: two sets of tracks, a wing print, and a light spray of snow over one set of tracks. Fill in your Field Sketches.*

Go to Scene 8. *Tell what you think happened.*

TRACKER'S DIARY

April

Spencer's Pond

3 o'clock

Some clouds,

warm

Spring has returned to Spencer's Pond, bringing with it many new plants and animals. A pair of redwing blackbirds has returned from the South, and new cattails and arrowhead plants have grown up around the shore.

I see many clues that tell me that the beavers are close. On a little island, several trees have been cut down by the beaver's sharp teeth. The water is very calm, indicating that somewhere on the edge of the pond there is a dam that keeps water from rushing out. On the right, I see the sturdy house the beavers built from sticks and logs. It looks much different here now that the snow has melted.

Go to Scene 9. *Some signs in nature, like downed trees and beaver dams, last longer than others. A mallard duck has settled in the pond. Move him around. What trails behind him? Can you see the signs in the pond left by a frog? Find the frog. What else can you find in the pond?*

The brown-feathered female blackbird sits in her nest. Pick her up. What is she sitting on? Look at the tracks in the sky. What made them?

Go to Scene 10. *Another story is told by these signs. Fill in your Field Sketches.*

Go to Scene 11. *Tell what you think happened.*

TRACKER'S DIARY

July

Winslow Beach

2 o'clock

Sunny

It is summer again, and I have returned to Winslow Beach. It looks very much the same as it did a year ago. Seaweed, egg cases, and a starfish are again scattered about the beach. A large jellyfish has washed up onto the sand.

I don't see any long V-shaped trails this year, but I see another very unusual set of tracks. They are very tiny, and they seem to start in the dry sand, go down to the beach, and then disappear in the sea.

When I follow the tracks, I see something special wiggling beneath the sand—baby turtles! Some of them have just hatched and are heading for the sea!

There are other tracks, too. They cross the baby turtle tracks, and then they are gone. Along with them, I see many human signs—trash. It looks like many people were here recently, and they were very careless.

Go to Scene 12. *Can you find the baby turtles under the sand? Go to the menu to find the animal that made the other tracks. Do you think all of the babies made it to the sea? What do you think might have happened to them? Pull down the trash can from the object menu and clean up the trash.*

Go to Scene 13. *Complete your Field Sketches.*

Go to Scene 14. *Complete your Diary Notes.*

BECOMING A TRACKER

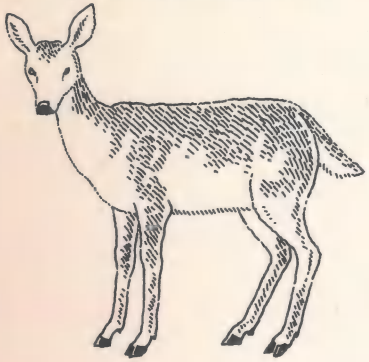
Now you see how interesting tracking can be. Tracks and signs are clues, and you can be the detective that uncovers them. As a tracker, you can discover the clues, read the stories they tell, and understand the animals that created them.

But a track story reveals itself slowly, bit by bit. To unravel it, you have to be patient and observant, take notes, do research, and make predictions. The more you do this, the more you will know about an animal's life. Long before you see the animal at the end of its trail, you will start to see what the animal sees, and hear what the animal hears. You will know the animal in its natural world.

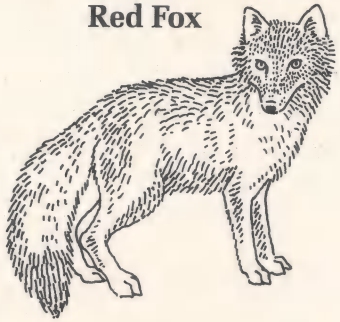
Go to Scene 15. *Imagine yourself in the world of animals. Go ahead and explore!*

Animals and Their Tracks

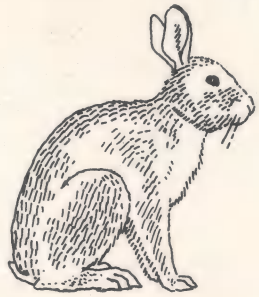
White-tailed Deer



Red Fox



Snowshoe Hare



Beaver

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Explore-a-Story and Explore-a-Science

In addition to the Explore-a-Story and Explore-a-Science packages available, you may wish to orde Student Activity Books or additional sets of the storybooks. The Student Activity Books, sold in packages of ten, provide reinforcement and extension of the vocabulary and themes presented in th Explore-a-Story programs. Additional copies of the storybooks for Explore-a-Story and Explore-a-Science are available in sets of five.

Explore-a-Story	Packages	Activity Book 10-Packs	Additional Book Sets (5 books)
The Bald Headed Chicken	13449-XP	15613-2P	15896-8P
The Lima Bean Dream	13451-1P	15612-4P	15895-XP
Rosie, The Counting Rabbit	13477-3P	15293-5P	15888-7P
A Brand New View	13446-5P	15290-OP	15889-5P
Just Around the Block	13448-1P	15288-9P	15890-9P
The Sleepy Brown Cow	13450-3P	15292-7P	15892-5P
What Makes a Dinosaur Sore?	13452-XP	15291-9P	15894-1P
The Quasar Kids	13453-8P	15294-3P	15893-3P
The Best Bubble-Blower	13696-4P	17033-XP	17034-8P
The Great Leap	13695-6P	17024-OP	17025-9P
Not Too Messy, Not Too Neat	13694-8P	17030-5P	17031-3P
Where Did My Toothbrush Go?	13698-OP	17027-5P	17028-3P

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Animal Watch: Whales	15103-3P	15879-8P

Prices: Explore-a-Story and Explore-a-Science packages sell for $75.00 each Activity books are $9.90 (for a package of ten Activity Books), and storybook sets (five copies of the storybook) are $9.90.

FOR MORE INFORMATION OR TO ORDER, CALL TOLL-FREE, (800) 428-8071

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ANIMAL WATCH TRACKS

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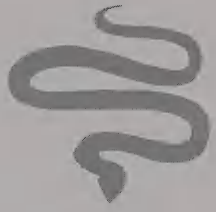

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Unified School District
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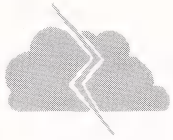

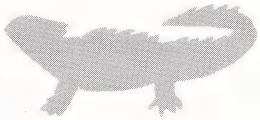

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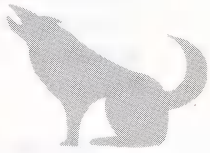
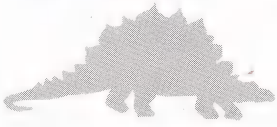
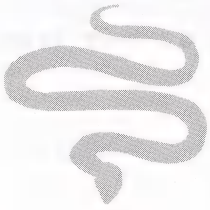
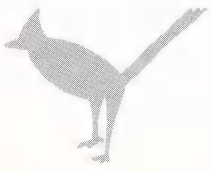
ANIMAL WATCH TRACKS

TEACHER'S GUIDE









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Note to Teachers

Explore-a-Science is a unique approach to the use of the computer for science education. It has been designed to encourage students to explore and to try things out. The Explore-a-Science programs provide accurate scientific information. They encourage students to ask questions about the world without necessarily providing answers to all of them, though clues to the answers are often available. They are intended as a means of stimulating students to *want* to know more and to ask questions. Science is a process of asking questions and looking for answers. It is a way of engaging students in a search for more information.

Sometimes during their explorations, students will want to try out things that are unlikely or impossible in the real world. For example, they can put a whale in the sky. This could lead them to ask the question, "Can whales fly?" For many students, the answer to such a question is obvious. For others, the question may indicate either a lack of understanding or heightened curiosity about the way things work in the world. For example, "Why can't whales fly? Why are whales shaped the way they are, compared to birds?" Teachers should be prepared to help students carry their explorations further and to find answers to their questions.

Table of Contents

Note to Teachers ii
Quick Start iv
Objectives vi

Introduction 1

Getting Started 1
Loading the Program 2

Using the Program 2
Moving the Pointer 2
Turning Pages on the Screen 3
Writing in the Scenes 4

The Menu Bar 4
Characters 5
Objects 5
Backgrounds 6
Labels 6
Disk Functions 7
Print 10

Explore-a-Science in the Classroom 11
Overview 11
Teacher Preparation 11
Suggested Lessons 11
Additional Activities 15

Trouble-Shooting Guide 17
Index 19

QUICK START

STARTING UP AND TURNING PAGES

Put the Program Disk into the disk drive and turn on the computer. Directions will appear. Put Side 1 of the Student Disk into the disk drive and click on the Page Turner box. This is the blue box in the upper-right corner of the screen. The number on the Page Turner box tells which page of the story or activity is on the screen. Placing the pointer on the Page Turner box and clicking will advance the story pages in order.

THE POINTER

After booting, the first page of the story will appear. There will be a small white arrow on the screen. This is the "pointer." Almost everything in Explore-a-Science is controlled with this on-screen pointer. To move the pointer, use the keyboard, a mouse, a joystick, or a Koala Pad. The following is a brief description of how to move the pointer and how to "click" using each.

Moving the Pointer	How to Click

THE MENU BAR

To reveal the Menu Bar, move the pointer to the green box in the upper-left corner of the screen and click. The menu choices, in order, are Characters, Objects, Backgrounds, Labels, Disk Functions, and Print. For specific information on Disk Functions or Print, see pages 7-10.

Characters

Move the pointer to the Characters box and click. An animated character will appear beneath the box. Place the pointer on one of the arrows beneath the character and click to see the other characters. To add one of the characters to the scene, place the pointer on top of the character and click. The character can then be moved anywhere in the scene. Click again to drop it.

Objects, Backgrounds, and Labels

	Moving the Pointer	How to Click
Mouse:	Move the mouse along a flat surface.	Press the button on the mouse.
Joystick:	Move the handle of the joystick in the desired direction.	Press the fire button.
Koala Pad:	Move a finger across the Koala Pad in the desired direction.	Press one of the buttons.
Keyboard:	Press the arrow keys to slowly move the pointer. For faster movement, press the open-apple key and an arrow key at the same time.	Press the closed-apple key . (On the IIGS, use the OPTION key.)

Try moving some things on the screen. To do this, position the pointer on an object or a character. Click once to pick it up. To move it, follow the same directions as for moving the pointer. Click again to drop it.

Objects, Backgrounds, and Labels

Add an object or label to the scene by clicking on the Object or Label box in the Menu Bar, and following the same steps described under Characters. To copy the same object into the scene many times, press the SPACE BAR instead of clicking. Any character or object on the screen can be erased by clicking on it and pressing the DELETE key, or by dragging it off the screen and clicking. To choose a different background, click on the Background box in the Menu Bar, then click on the new background.

Saving Your Work

To save any changes to the screen, choose Save in the Disk Functions box of the Menu Bar. Moving to the next scene without saving will cause all work to be lost. Each student should save to his/her own disk. Scenes can be saved under the original page name or a new name. The story or activity sequence is left if a new name is chosen. This means that the student will have to return to the menu to open the next scene every time he/she saves under a new name.

Notes on Opening

The program automatically opens to the first page of the science story. To use the Activities on Side 2 or retrieve other work, choose Open in the Disk Functions box of the Menu Bar. See page 7 for more information.

<

Objectives

In completing the program, students will be able to

- Identify a variety of animal tracks, using a field guide as a reference.
- Interpret the tracks and signs left by animals and draw intelligent conclusions about their behavior.
- Recognize gait changes in a set of tracks and describe gaits peculiar to specific animals.
- Classify related tracks and describe their similarities and differences.

Introduction

Explore-a-Science is a series of educational programs that allow students to explore the wonders of the scientific world while discovering reading, writing, and their own imaginations. Students can change and rearrange scenes on the screen, add text, and create new scenes which can be saved on a Student Disk or printed and made into books.

Each Explore-a-Science package includes five science readers, a Teacher's Guide, and four disks: the Program Disk, the Student Disk, and two back-up disks. The back-up disks should be kept in a safe place for use in the event of loss or damage to the Program or Student Disks.

The uses of Explore-a-Science are limitless. Following is a basic sequence to guide your use of the program:

- Read the Explore-a-Science readers
- Page through the scenes on the computer screen
- Change and experiment with existing scenes on the computer
- Create and print original books from the scenes

Getting Started

Explore-a-Science runs on an Apple IIe, enhanced (with 128K of memory), IIc, or IIGS computer and one disk drive. A color monitor is recommended. A printer, either color or black-and-white, is optional.

The Program Disk and a copy of the Student Disk for each computer are all that is necessary to run the program. As many copies of the Student Disk as needed can be made using the Apple System Master disk supplied with the computer.

Loading the Program

Insert the Program Disk with the label side up into the disk drive and close the drive door. Turn on the computer and monitor. When the title page of the story appears on the screen and the red light on the disk drive goes off, remove the Program Disk from the drive and insert the Student Disk with side 1 facing up.

Using the Program

Each scene in a story is on a different "page." To advance pages and view all the scenes in a story, refer to **Turning Pages on the Screen** on page 3 of this guide. Characters in a scene can be moved or deleted and new characters and objects can be added/deleted to modify a scene. Labels can be added to identify characters and objects, and text can be inserted to amplify a scene. Also, the background can be changed to create a new scene. Refer to pages 5 - 6 for detailed information on these functions.

To page through the scenes of other stories on the Student Disk, open the story desired (see **Open,** page 7). To exit from any point in the program, first, save on a Student Disk (see **Save,** page 7) any modified or new scene, then turn off the computer and monitor, and remove the disk from the drive.

Moving the Pointer

The pointer, which appears as an arrow on the screen, is used to turn pages, to make selections from the Menu Bar, and to move characters, objects, and labels into a scene or to reposition them within a scene. The pointer can be moved using a mouse, a joystick, a Koala Pad, or the keyboard, as follows:

Mouse: Any movement of the mouse will affect the pointer location. Move the pointer by moving the mouse in the desired direction along a flat surface.

Joystick or **Koala Pad:** Movement of the joystick handle, or a finger across the Koala Pad will move the pointer in a corresponding direction.

Keyboard: Pressing the arrow keys on the keyboard will move the pointer slowly. (The ↑ moves the pointer up, the → moves the pointer to the right, etc.) For faster movement, hold down the [] and an arrow key at the same time.

To move characters, objects, and labels into or around a scene, position the pointer directly on the selection and click, then move to desired location.

To *click* with the

Mouse: press the button.

Joystick: press the fire button. (If the joystick has two buttons, experiment to see which button is active.)

Koala Pad: press one of the two front buttons.

Keyboard: IIe and IIc: press the [].
IIGS: press the **option** key.

Turning Pages on the Screen

Story pages can be turned by using the Page Turner which is the blue box located in the upper-right corner of the screen. There is always a number in the Page Turner box, indicating which story scene is on the screen. Move the pointer to the Page Turner box and click to advance the story pages sequentially. At the end of a story, the title page will reappear, permitting the story to be reread if desired.

Caution: *When changes have been made to a scene, or a new scene has been created, be sure to save the scene (see* **Save**, *page 7) before going on to the next page, otherwise it will be lost.*

Writing in the Scenes

Students can add text to a story by positioning the pointer where the text is to begin and then typing the desired words, pressing RETURN at the end of each line to move to the next line. ***Note:*** *RETURN must be pressed when the text reaches the right-hand edge of the screen.* To edit or delete writing, follow the directions under **Labels** (page 6).

The Menu Bar

The Menu Bar displays the characters, objects, backgrounds, labels, disk functions, and print options available in Explore-a-Science. Move the pointer to the green box in the upper-left corner of the screen and click or press the ESC key to reveal the Menu Bar. When the Menu Bar is visible, the box in the left-hand corner contains a red "X." Click again on the box, or anywhere other than on the Menu Bar, and the Menu Bar will disappear.

Following is a description of the functions represented by the icons on the Menu Bar:

Characters Add animated characters to a scene.

Objects Add objects to a scene.

Backgrounds Change the background of a scene.

Labels Place prewritten words in a scene.

Disk Functions Open stories, save scenes, clear the screen, and access **Set Up** and **Disk Utilities**.

Print Print existing or new scenes in black-and-white or color.

To select any of these functions, move the pointer to the corresponding icon in the Menu Bar and click.

Characters

To add animated characters to a scene, select Characters by clicking on the first box in the Menu Bar. Then, look through the collection of characters by clicking on the ⬆ ⬇ arrows, located at the bottom of the character box. Once the desired character is displayed, click directly on it and move it into the scene. Click again to drop it in place.

To delete a character, click on it, then press DELETE.

Objects

To add non-animated objects to a scene, select Objects by clicking on the second box in the Menu Bar. Then, look through the collection of objects by clicking on the ⬆ ⬇ arrows, located at the bottom of the object box. Make a selection, and move or delete objects by following the procedure outlined for characters.
Note: *Some objects are part of the background and cannot be moved or deleted.*

To place multiple copies (up to 200) of an object in a scene, after moving the object to the desired location on the screen, press [SPACE], then move the object to the next location and press [SPACE] again. Continue to reposition the object around the screen, pressing [SPACE] each time a copy is desired. When the final copy has been placed, click to drop the object from the pointer.

Backgrounds

This option can be used to change the background of an existing scene or create a background for a new scene. Clicking on the third box in the Menu Bar discloses a selection of backgrounds. The background of a scene can be changed, while retaining the existing characters and objects, by positioning the pointer on a new background and clicking. To create an entirely new scene, the screen must first be cleared (see **Clear Screen,** page 8) before selecting a new background.

Labels

Clicking on the fourth box in the Menu Bar presents a list of the basic vocabulary words in the story that can be used as labels for characters and objects. Add labels to a scene in the same way as characters and objects.

To delete or edit labels and text:

1. Position the pointer anywhere on the label, or in the line containing text to be changed or deleted, and click.

2. Press [DELETE] to begin erasing at the last letter of the label or a line of text.

For text only:

3. Continue to press [DELETE] until the desired text has been deleted.

4. If desired, type new text in blank space created by deletion.

Disk Functions

- **Open** - Loads stories from the disk in the drive.
- **Save** - Saves new scenes or scene changes on the Student Disk. (Be sure a Student Disk is in the drive.)
- **Clear Screen** - Erases scenes from the screen.
- **Setup** and **Disk Utilities** - See **Teacher Utilities**, page 9.

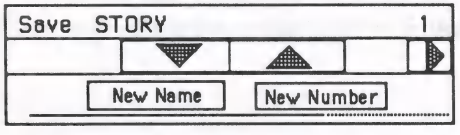
Open

To load a story, click on the fifth box in the Menu Bar: **Disk**, then click on **Open.** Page through the story titles by clicking on either arrow.

Click on the name box when the desired story title appears. Be sure the page number shown at the right of the name box is the page desired. If not, click on the ▶ below the number until the desired number is displayed. Then click on the name box to load that number.

If the story title desired is not displayed, it may be on another disk. Remove the disk from the drive and insert the disk containing the desired story. Click on **Disk** in the Menu Bar and proceed as outlined above.

Save



To save a newly created or modified scene, click on the fifth box in the Menu Bar: **Disk**, then click on **Save**. ***Note:*** *Be sure to insert a Student Disk before attempting to save any scene.*

To save a modified scene, click in the name box to save it under the story name and scene number shown. Answer *Yes* to replace the original scene with the modified scene, or *No* to return to Save box to make another choice. To save a modified scene without replacing the original scene, click on *New Number* and type a number that is higher than the last one in the story, then click on the name box.

If a scene will not save, it may be locked (asterisk next to story name) and must be unlocked before it can be saved (see **Disk Utilities,** page 10).

To save scenes in a newly created story, the story must be given a new name, then each scene in the story must be given a number and be saved individually, at the time it is created. Click on *New Name* and type a name for the story, then click on the name box to save the scene, as shown on the screen, as scene 1. To save subsequent scenes in the same story, after creating each scene, click on *New Number* and type a sequential number, then click on the name box.

The red line under **New Name - New Number** shows how much space is left on the Student Disk. When the red line is close to the right edge of the box, the disk is nearly full. Delete unwanted scenes from the disk to create more space (see **Disk Utilities**, page 10), or save the scene(s) on another Student Disk.

Clear Screen

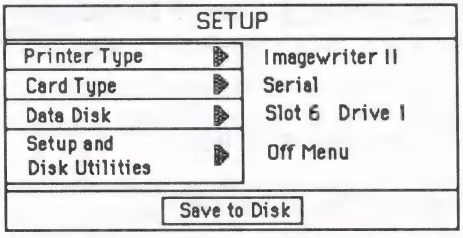
To erase everything on the screen, click on the fifth box in the Menu Bar: **Disk**, then click on **Clear Screen.**

Caution: *If the screen is cleared without first saving a modified or newly created scene, it will be lost.*

Teacher Utilities

The following utilities (**Setup** and **Disk Utilities**) are functions not ordinarily used by students, and for that reason are "hidden" on the menu. To use these functions, click on the fifth box in the Menu Bar: **Disk**, then press and hold CTRL and T.

Setup



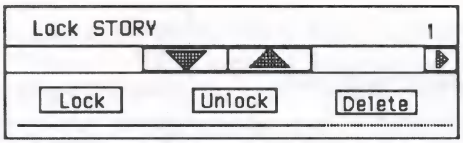
The default settings for Explore-a-Science are:

- Apple Imagewriter II printer
- Serial printer card
- One disk drive

To change these settings, click on the fifth box in the Menu Bar: **Disk**, press and hold CTRL and T, then click on **Setup**. With the pointer, select the option to be changed and click on it to automatically change the default.

To add these teacher utilities to the **Disk** menu box, click on **Setup and Disk Utilities** to change the default to **On Menu**, then with the Program Disk in drive 1, click on **Save to Disk.**

Disk Utilities



Any scene can be locked to prevent changes from being made to it. Locked scenes are indicated by an asterisk in the name box. Scenes originally contained on the Program and Student Disks are locked. Locked scenes can be unlocked, thereby permitting changes to be made.

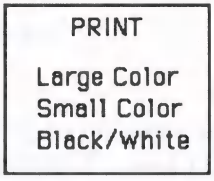
To lock, unlock, or delete a scene, click on the fifth box in the Menu Bar: **Disk**, then press and hold CTRL and T. Click on **Disk Utilities**, and page through the story names in the name box. When the desired story and scene number appears, click on:

Lock then click on the name box.

Unlock then click on the name box.

Delete then click on the name box. Only unlocked scenes can be deleted. ***Caution:*** *Deleting a scene removes it permanently from the disk.*

Print



Explore-a-Science scenes can be printed in color in two sizes — full page or half page, or in black-and-white outline form, which students can then color in. Before printing, make sure that the setup is correct for printer/computer combinations in the **Disk Functions-Setup** section. Then check to see that the printer is connected to the computer and that it is turned on.

When the scene to be printed is on the screen, click on the sixth box in the Menu Bar: **Print**, then click on the desired print option.

Explore-a-Science in the Classroom

Overview

There are many approaches to using Explore-a-Science. This section provides ideas and suggestions for using *Animal Watch — Tracks* in the classroom. Read through this section and think of ways in which the computer program and science readers might best be used to build your students' skills in reading, writing, and scientific discovery.

Teacher Preparation

Before using *Animal Watch — Tracks* in the classroom, review the accompanying science readers, noting the characters, scenes, and objects in the books.

Next, become familiar with how the computer program works — opening and saving scenes on the Student Disk, and printing pages (see pages 7 - 10 of this guide). The main scenes are found on Side 1 of the Student Disk. Activities are found on Side 2.

Suggested Lessons

The following activities, using the files found on Side 2 of the Student Disk, are suggestions for presenting *Animal Watch — Tracks* to students. The activities can be found by opening each file directly. To proceed sequentially through all the activities, open the file called **ACTIVITY SET 0.**

1. Examining Differences Within a Group

This activity uses the file called **HOOF TRACKS.**

The tracks of an elk, a sheep, a bison, a moose, and a deer are illustrated here as examples of hooved animals. This activity illustrates the concept that related animals have similar tracks. Students should take note of the shapes and sizes of the tracks. A ruler (scaled down in inches) at the bottom

of the screen can be used to compare sizes. Have the students move the ruler over each track to measure the length and width of each.

For alternate activities, the teacher can take the names of the animals off the screen and have students research and label the tracks with names from the Labels menu. Similarly, the teacher can take the tracks off the screen, and the students can bring the track illustrations down from the Objects menu to match them with the names. Students can also research other orders of animals (dog, cat families, etc.) and observe the differences and similarities in their prints. They can draw and color them full-size, or cut them out of black construction paper, then place the tracks around the classroom and create tracking stories.

2. Identifying Track Patterns

This activity uses the file called **DEER TRACKS.**

The different gaits of two animals are compared here. While rabbits almost always use the bounding gait, other animals use other gaits. Observe what these gaits look like and how they differ. Scene 1 of this activity shows an overhead view of two sets of deer tracks — one walking and one trotting. Underneath each is an explanation of the pattern. Scene 2 also shows an overhead view of two sets of tracks, and two animated deer with different gaits. Students are asked to label each track and match the correct deer to each. The different gaits affect the speed at which the animals travel. Students can demonstrate this on the screen by moving the animals. A walking animal travels slowly. A trotting animal travels at medium speed. How fast would a running animal travel? With a trot, an animal can cover a lot of ground and still save energy. Animals generally save running for emergency situations. The students could suggest what the circumstances might be in which an animal would use the different gaits. When students track an animal and note a gait change, they should look around for evidence of what might have caused that change.

3. Examining the Bounding Gait

This activity uses the file called **SLOW JUMP.**

This activity builds on the December snow scene in which rabbit tracks are seen coming from the distrance and ending in a form in the snow. The tracks are naturally deceptive in that it is difficult to tell which direction they are coming from. This activity is meant to clarify any student questions.

Have the students look at the difference in the tracks shown on the screen, and observe the stop-action, frame-by-frame view of the bounding rabbit. Notice how the rabbit's forefeet hit the ground first, then the hind feet come over where the forefeet were. The rabbit pushes off from this position. Below each spot where the rabbit lands is an illustration of the kind of track it leaves behind. The students can pick up the animated rabbit on the lower part of the screen and move it across the screen to watch it leap. Examples of other animals that bound include squirrels, mice, chipmunks, and skunks.

For alternate activities, the teacher can take the rabbit images and line them up in random order anywhere on the screen.

4. Doing Field Work

This activity uses the file called **TRACKING TAG.**

This activity provides a tracking tag (field guide) that pictures eight animals and their tracks. The tag can be used in several ways. As is, it can be printed out and folded together so that four animals are illustrated on each side. Teachers or students can laminate the card and punch a hold in the bottom, and then attach the Tracking Tag with pipecleaner to the student's jacket. In this way, the field guide will be available all season long to help the students in their tracking activities.

The guide could also be "customized." Teachers or students could make their own personalized tracking tag specific to the habitat they are going to visit by deleting the animals they would not expect to see and adding the ones they will be searching for. Several animal pictures and tracks are available in the Objects menu, and the students would need to research the animals and match the tracks with the animals to complete their tracking tag. For a more extensive field guide, the students could print out the guide

provided, create more pages, print these out, and staple them together to make a book. Students can also print in black-and-white, then color the printouts. This would lend itself to more research regarding the colorings of specific animals and species.

5. Interpreting Tracks

This activity uses the file called **STORIES.**

This acitivity provides four different scenes that correspond with the scenes visited in the disk/book — beach, forest, snow, and pond. The first screen provides instructions for the activity. In each of the four scenes props are provided to begin stimulating the students' imaginations. Individuals, pairs, or groups of students can clear the screen and use props from the Objects menu to create a scene for others to interpret. Students should be encouraged to build on the types of observations they have made in working with the disk, and to imagine possible events that might have taken place. For example, the students could bring in props to serve as cover for the animal, as motivation or food for the animal, or as a reason for a gait change (such as jumping over a stone wall). They should illustrate the story they have imagined with tracks and signs.

The situations students create can be printed out as exercises for other students. What do you think happened here? Two students could work together to create two very similar scenes with one difference. Other students could look for that difference and note how it would change their interpretation of the scene. This helps to develop close observation and interpretation skills, as well as creative thinking abilities.

6. Printing a Certificate

This activity uses the file called **CERTIFICATE.**

An official Tracker's Certificate is available for printing in this activity. Students' and the teacher's names can be added to the certificate by typing on the computer, or by writing on the printed-out sheets. If the teacher wants to give first, second, or third awards, the ribbon can have a place number typed on it. The ribbon can be deleted or added from the Objects menu.

Teachers or students can change the border decorations by getting them from the Objects menu (tracks and animals are available there), or by deleting or rearranging what is currently there. Students who are in learning groups can illustrate their own group certificates (rabbit group, deer group, etc.) The text can also be manipulated or changed by the teacher or students. Certificates can be printed in color or black-and-white for coloring by hand.

Additional Activities

The following are additional activities you may wish to use with your students:

- **Identification**

  Have students cut out or draw the various deer found in North America. For example, white-tailed deer are found in eastern and central North America, while mule deer are found in the western sections. Students should research the similarities and differences among the deer. Are their tracks the same size and shape? Do they eat the same kinds of plants? What animals prey on them in each geographic location? What kind of land do they inhabit? What is the climate like? Does it ever snow? Does it rain much? These conditions not only affect the actual track or sign left behind, but also influence expectations of the tracker. A tracker must be prepared to look for all kinds of variations in tracks and signs. Have students collect pictures that are representative of their research. Once students have finished gathering information, they can display it on a large map of North America. Different focus groups can be established at the same time to research other animals, such as rabbits, squirrels, and bears. Discussions should focus on how these differences change the interpretations of tracks and signs in a given area.

- **Interpretations**

  Give students a scenario that contains an interaction between animals, or the descriptive activity of one animal. Have students draw the scene on paper, putting in tracks and signs to show the movement or activities of the animals. If desired, the teacher can give the students paper that already has the environment drawn on it, and then have students put in the extra props and tracks. Ask students to come up with a story of their own, using any

animals that the class has studied. Each student can then present his/her story to a group. The group would then be responsible for reproducing the scene using tracks and signs. Students could also draw the scenes on the chalkboard, or use a bulletin board and cut-out tracks. Students may use a field guide or classroom charts in order to reproduce the correct track.

An alternate activity would be to have each student put tracks and signs into a scene. The other students in their group would then have to identify the tracks and tell a story about what happened. Students may want to use the activity called Stories on Side 2 of the Student Disk in order to do this.

- **Gait Changes**

Have students research and identify the gaits of various animals, beginning with the walk and the trot. Explain the terms *stride* and s*traddle* to students and have them tell how these two measurements could be useful in identifying animals. *Stride* is the distance between a track of the front foot and a track of the back foot. *Straddle* is the distance between tracks of the left and right feet. Have students list a variety of animals that use a walk and a trot. Students can make posters with the name of the gait at the top, and a list of the appropriate animals below. Have students draw an example of each gait at the top of the poster. Students could make additional posters of other gaits, such as, bounding, hopping (including birds), walking (including birds), and running. Students can also cut out tracks of the gait patterns of various animals and tape the tracks on the wall or chalkboard. Other students could try to identify the animal and its gait.

- **Classification**

Examine the tracks of various animal families or groupings, such as, the dog, the cat, or the rodent. Have students make charts of each grouping, picturing various members and their tracks. For example, in the dog family, they might include a dog, fox, coyote, and wolf. Have them create one summary chart which shows an example of a track from each grouping. Next to each track, list the major characteristics of each group. For example, the cat track shows a heel and four toes, while the dog track shows all of these as well as four claw marks. What are the ranges of size in each group? How many toes do they have? Do the heels always leave tracks? Are the front footprints the same as the back footprints? Have students post the charts around the classroom.

Trouble-Shooting Guide

Problem	Possible Causes	Solutions
Program Disk will not load	Program Disk not in drive, or in wrong drive. Disk-drive door open. Disk drive improperly connected to computer. Disk inserted upside down. Computer does not have enough memory. 80-column card does not have Hi-resolution connector.	Program Disk must be in drive 1. Close disk-drive door. Check computer manual for instructions. Insert label-side up. 128K of memory required. Obtain Hi-res connector from computer dealer.
Unable to Open another story	Program Disk in drive.	Remove Program Disk and place Student Disk in drive 1.
Unable to Save scene	Scene is locked. A scene with the same name and number already exists on disk. Student Disk not in correct drive. Disk has a write-protect tab. There is no room left on the disk. Student Disk does not have same story title as Program Disk used to load program.	Unlock (see page 10). Give scene new name and new number. Student Disk must be in drive 1. Remove tab to expose notch on disk. Delete unwanted scenes, or use another Student Disk. Insert Student Disk with same title as Program Disk being used.
Error messages	Too many objects (about 200), or text letters (about 750), or characters (over 11) in the scene. Disk drive door open.	Delete some objects, text, or characters (see pages 4-6). Close disk-drive door.
Unable to add new characters, objects, or labels	Too many characters, objects, or labels in the scene (see "Error messages"). Pointer is not directly on the character, object, or label when clicking.	Delete some objects, text, or characters (see pages 4-6). Position pointer on top of character, object, or label, then click.

Trouble-Shooting Guide

Problem	Possible Causes	Solutions
Characters will not animate	Too many characters and objects in the scene (see above). Character behind another character (only the one on top will move).	Delete some characters, or objects (see page 5). Separate characters from each other.
Unable to print, or prints incorrectly	No printer connected. Printer not connected properly. Paper not inserted correctly. Printer Select button off.	Connect printer. See computer manual. Paper must be centered on platen. Depress Select button.
Unable to move pointer	Mouse, joystick, or Koala Pad incorrectly plugged in, or plugged in after booting.	Refer to computer manual; Turn off computer and reconnect.
Page Turner won't respond	Screen has been cleared. One-page story.	Story must be re-opened.
Pointer has disappeared	Pointer has been moved off the screen (shows as a black line on the border).	Move back onto screen until arrow is visible.
Unable to Save Setup	Program Disk has write-protect tab. Program Disk not in drive, or in wrong drive	Remove tab to expose notch on disk. Program Disk must be in drive 1.
Pointer and icons have disappeared	Computer in print mode. Print selected without first connecting the printer.	Icons, pointer will return when print complete. Check printer connections and turn printer on before attempting to print.

Index

B

Backgrounds, **2,4,6**

C

Characters, **2-5,17,18**
Clear Screen, **6-8**
Click, **3,17**
Closed-Apple Key, **3**
Computer Requirements, **1**
Copying, **6**

D

Default Settings, **9**
Delete Characters, **5,17 18**
Delete Labels, **4,6**
Delete Objects, **5,17,18**
Delete Scenes, **8,10,17**
Delete Text, **4,6,17**
Disk Drive Operation, **2**
Disk Functions, **7**
Disk Space, **8**
Disk Utilities, **8,10**

E

Edit Labels, **6**
Edit Text, **4,6**
Error Messages, **18**

I

Icons, **4-10,18**

J

Joystick, **2,3,18**

K

Keyboard, **2,3**
Koala Pad, **2,3,18**

L

Labels, **2,5,6,17**
Load Program, **2**
Lock Scenes, **8,10**

M

Menu Bar, **4**
Mouse, **2,3,18**
Move Pointer, **2**

N

New Name, **8,17**
New Number, **8,17**

O

Objects, **2-6,17,18**
Open-Apple Key, **3**
Open Scenes/Stories, **2,5,7,17,18**

P

Page Turner Box, **3,18**
Pointer, **2,3,17,18**
Printer Setup, **9**
Print, **10,18**
Problems, **17,18**
Program Disk, **1,2,9,10 17,18**

S

Save Scenes, **2,3,5,7,8, 17**
Select Backgrounds, **2, 4, 6**
Select Characters, **2-5**
Select Labels, **2,3,6**
Select Objects, **2-5**
Setup, **9,18**
Start-up, **1,2**
Student Disk, **1,2,7,8,10, 11,17**

T

Teacher Utilities, **7,9**
Text, **2,4,6,17**
Trouble-Shooting, **17,18**
Turn Pages, **2,3**

U

Unlock Scenes, **8,10,17**

W

Write in Scenes, **4**

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